to determine the variation of the intensity of the force with a change of distance, by placing the needle opposite an electro-magnet and noting the deflection produced when the instruments were at different distances from one another: it was found that in the apparatus employed the intensity varied inversely as the 2·7404 power of the distance from the core. Dr. Mayer has determined the power of cores made of insulated and of non-insulated soft iron wires, and finds that the insulated core is slightly the weaker. He has also measured what thickness of tube is equal to a solid core of the same diameter, and has found that a solid cylinder ten inches long and 1·68 in diameter may be replaced by a tube of the same length and of a thickness of $\frac{1}{6}$ of the diameter. This relative size does not appear to be constant for cores of all dimensions. A longitudinal slit in the tube does not diminish its power; in fact, Dr. Mayer seems inclined to think that it facilitates its magnetisation. By placing a helix inside a soft iron tube a magnet is produced with poles the reverse of those of the coil, or of a bar placed within the helix; this supports Ampère's theory of magnetic currents. Numerous other experiments are detailed in this paper, and the author promises to employ his apparatus for the determination of the force of magnets of different sizes.—Mr. G. F. Barker contributes an abstract of the second series of Professor Meissner's researches on electrised oxygen, in which are detailed the author's experiments on the substance formed simultaneously with ozone which possesses the property of producing a white mist in contact with water. The original paper was published by the Göttingen Royal Society of Sciences.—Mr. A. E. Verrill describes a new species of Entozoön from the Hog. This is followed by some notes on the structure of the Crinoidea, Cystidea, and Blastoidea, by E. Billings, F.G.S.—The next article consists of contributions to chemistry from the laboratory of the Lawrence Scientific School, the first paper of which is by W. G. Leison, on the precipitation and determination of the metals of the magnesium group in the form of oxalates. For this purpose the solutions containing the metals are mixed with oxalic acid and alcohol, the precipitated oxalates washed, dried, and dissolved in hydrochloric or sulphuric acid, and the quantity of oxalic acid present estimated by means of a standard solution of potassic permanganate. A number of examples show the accuracy of the process.—J. H. Talbott describes the precipitation of zinc and manganese as sulphides, and the quantitative separation of tin and tungsten by fusing with potassic cyanide, by which the tin is reduced to the metallic state.—A new mode of treating gelatinous precipitates is suggested by T. M. Chatard, which consists in evaporating the liquid containing the precipitate to dryness, and stirring until the mass becomes a dry powder, which is then readily washed on a filter.—S. P. Sharples points out that antimonious sulphide precipitated by sulphuretted hydrogen in boiling solutions is granular and easily washed. Arsenious sulphide does not behave in a similar manner.—In the fifth section B. Godwin advises the repetition of quantitative analyses with the same quantity of material, the mean of the results being taken.—The next article is by Professor W. A. Morton on the corona seen in total eclipses. He calls the attention of astronomers to the importance of determining the positions of the more prominent portions of the corona with reference to the equator of the sun.—Dr. Finlay contributes observations on prehistoric archæology in Greece.—The remainder of the journal consists of extracts from other journals principally European.

THE *Geological Magazine* for December (No. 78) opens with a curious paper on Earthquakes, written about the year 1798 by Sir John Prestwich, an ancestor of the President of the Geological Society. This paper is interesting not only as showing the absurdities which passed as science not much more than seventy years ago, but also as giving a list, derived from old historical works, of the occurrence of earthquakes in England.—The most important article in the number is a continuation of Mr. H. Woodward's Contributions to the Knowledge of British Fossil Crustacea, containing descriptions of species of the curious genus *Cyclus* from the British Carboniferous rocks. Many of the species are described as new, and most of them are well figured. There is also an interesting article by Mr. George Maw, on Recent Changes of Level in the Coastline of the Mediterranean; and Mr. J. F. Walker describes and figures some *Brachiopoda*, from the Lower Greensand of Upware in Cambridgeshire, two of them as new species. Other papers are: "On the Age and Position of the Blue Clay in the West of England," by Miss C. Eyton; and "On the Dispersion of Granite Blocks over the Plain of Cumberland," by Mr. D. Mackintosh.

THE most important paper in the *American Naturalist* for November is one presented by Prof. Agassiz to the Troy meeting of the American Association for the Advancement of Science, "On the former existence of local glaciers in the White Mountains." He conclusively shows that whatever may have been the number of its higher peaks which at any given time during the glacial period rose above the great ice-sheets that then covered the country, this mountain range offered no obstacle to the southward movement and progress of the northern ice-fields. To the north of the White Mountains, as well as to the south, the northern drift consists of a paste more or less clayey or sandy, containing abraded fragments of a great variety of rocks, so impacted into the minutely comminuted materials as to indicate neither stratification, arrangement, nor sorting, determined by the form, size, or weight of these fragments. Large boulders and pebbles of all sizes are found in it throughout its thickness, and these coarser materials have evidently been ground together with the clay and sand under great pressure, beneath heavy masses of ice; for they have all the characteristic marks so unmistakeable now to those who are familiar with glacial action, scratches, grooves, furrows, &c. We have also articles "On the Habits and Migrations of some of the Marine Fishes of Massachusetts," by J. H. Blake; "What is the Washington Eagle?" and "On the Distribution of the Moose in New England," by J. A. Allen; "Notes on certain Inland Birds of New Jersey," by Dr. C. C. Abbott; and two reprints, "On the Cultivation of Alpine Flowers," and "Acclimatisation of Foreign Trees," both from the *Quarterly Journal of Science*, by Mr. A. W. Bennett. Further abstracts are also given of papers read at the recent meeting of the American Association for the Advancement of Science.

SOCIETIES AND ACADEMIES

LONDON

Royal Geographical Society, December 13.—Sir H. Bartle Frere, vice-president, in the chair. The following new fellows were elected:—Daniel David Dymes; Colonel T. G. Glover, R.E.; R. M. Gordon; Captain L. W. Longstaff, Edward Masterman, jun.; Don Pompeio Moneta (Chief Engineer Argentine Republic), Charles Pannel; Alfred Robinson; G. S. T. Scobell; and C. A. Winchester.—Lieutenant G. C. Musters, R.N., read a paper on his recent journey through Patagonia, from the Straits of Magellan to the frontier of the Argentine Republic. The author, having determined on this journey, landed at the Chilian penal settlement of Punta Arena, in the Straits, on the 15th April, 1869, and, having procured the goodwill of the governor, was permitted to accompany a party who were despatched across the country to recover some runaway convicts at the mouth of the River Santa Cruz. Here he made a friendly arrangement with Orkeke, the cacique of a tribe of Patagonians, to traverse the country with them as far as the Rio Negro. He studied their language and manners, and joined them in their hunting parties: the country abounding in game, chiefly guanaco, the three-toed ostrich, and the puma, or American lion, the latter of which was eaten as well as the rest. Frozen rivers and heavy snow-falls prevented their starting from Santa Cruz before the 12th of August. They travelled at first in a westerly direction, until reaching the foot of the Cordilleras, along which they marched for upwards of 700 miles to the upper waters of the Rio Negro, making a short, but important, detour across the River Limay, in the Cordillera due east of Valdovia. The author described the streams crossed throughout the route, the physical nature of the country, and its chief productions, and gave also long and most interesting details of the manners of the wild tribes, including an account of hostile encounters with other tribes. He stated that, when not excited, the Patagonians manifested a good-tempered and generous disposition, and that they were remarkable for their affection to their wives and children. The women have the whole charge of the tents, constructed of poles and guanaco skins, and the march of many months was an almost continuous chase after the game of the country. Every morning the chief gave his orders for the day in a set speech. The men, on starting, spread themselves over a wide space in the plains, in a crescent form, the more advanced of whom on each side, travelling fastest, as the whole cavalcade moves on, meet in front, and thus enclose the game in a circle; the women and children, with the baggage-horses, forming the base line of the crescent. In the earlier part of the journey four such marches were made in succession, averaging eight or ten miles each; then followed a rest of several days, in places where pasture was abundant. Lieutenant Musters was altogether more than a year with the tribe, who had come to look upon him as one of themselves. In May 1870 he crossed the country again from west to east, and on the 21st of that month arrived at the Argentine settlement of Patagonia, near the mouth of the Rio Negro. The climate of the country, in which he reached north of 40° S. lat., he describes as cold and ungenial; snow fell at midsummer, and the greatest heat experienced in the warmer months was only 65°.

Geological Society, December 7.—Mr. Joseph Prestwich, F.R.S., president, in the chair.—1. "On Fossils from Cradock and elsewhere in South Africa." By Dr. George Grey. From the Karoo-beds, Dicynodont fossils and the jaw of a reptile (*Estheriæ*), and some coal and coal-plants (*Lepidodendron*, *Sigillaria*, &c.), were the chief specimens noticed by the author. Some *Stigmariæ* from the Old Coal of Lower Albany, and gravel and miscellaneous minerals from the diamond fields, formed part of the collection. 2. "On some Points in South African Geology," Part II. By Mr. G. W. Stow. This paper commenced with a detailed account of the forest zones, coal, and other strata of the Karoo formation, as seen in sections in the Winterberg and Stormberg. The author particularly pointed out the position of the fern-beds at Dordrecht, of the Reptilian remains found on the Upper Zwartkei, and of the coal on the Klass Smits River. He next referred to the climatal changes of South Africa, as indicated by its geology and fossils, particularly the Karoo-beds, the *Enon* conglomerate, the *Trigonia*-beds, the several Post Tertiary shell-beds, and especially the present surface conditions, which he regarded as due to ice-action, as evidence of which he adduces *roches montonnées*, moraines, basins, and striæ, both north and south of the Stormberg, in British Kaffraria, and even in Lower Albany. He concluded with remarks on the probable succession of periods, and on the former existence of a great southern continent. Prof. Ramsay expressed a hope that the author at some future time would discuss the numerous subjects of which he treated at greater length and under separate heads. He was not surprised at the finding of Carboniferous plants in the Dicynodont beds which appeared to be of Triassic age, inasmuch as the same was the case to some extent in our own later beds of Oolitic date. He agreed in the view of the probability of a vast continent having formerly existed in the southern part of the world, and considered that the denudation of Southern Africa had been so great, that it was no wonder the boundaries of the old freshwater lakes were no longer easy to find. It was also by no means surprising to him that a recurrence of glacial phenomena should be found in Southern Africa, as it had been in Europe. He did not, however, think it necessary to call in the action of ice for the excavation of valleys such as some of those described, as rain and running water appeared to him sufficiently powerful for the purpose. At the same time he would not deny the possibility of ice having been the agent in these cases. Mr. R. Tate had seen evidence of similar effects being produced by aqueous force to those resulting from glacial action, and cited instances of moraine-like deposits having been formed by running streams in Central and Southern America. Mr. H. Woodward suggested that it would be desirable to wait for further particulars of the sections before asuming the actual association of the *Lepidodendron* and other plants. He added that the *Stigmaria* lately said to have been obtained from the Kimmeridge clay, had really come originally from Newcastle. Prof. T. Rupert Jones remarked that Mr. Stow, like other South African geologists, had had ample experience of the effects of violent rain. With regard to the mixture of Palæozoic plants, such as the *Lepidodendron*, &c., sent by Dr. Grey with *Palæozamia* and *Pecopteris*, he thought it somewhat analogous to the mixture of palæozoic and mesozoic fossils in Australia. 3. "On the Geology of Natal, in South Africa." By Mr. C. L. Griesbach. The author commenced by describing the physical geography of Natal, and then indicated the characters and distribution of the rocks which occur in that country. He stated that the granitic and gneissic rocks do not form the most prominent elevations, but they appear chiefly in the lower parts of the river-valleys, and sometimes in small hills. Mica-schists and slates are found associated with the granites. The great plateaux consist of an undisturbed sandstone, which the author identifies with the Table-mountain sandstone, and which lies horizontally upon the granites and old slates. The tops of many of the table-mountains in Natal are crowned by beds of dark basaltic greenstone. The Karoo formation, which lies in part upon the Table-mountain sandstone, consists of a vast series of sandstones and shales, some of the latter containing beds of coal. The author agreed with Mr. Tate in regarding these beds as of Triassic age. At the base of the Karoo formation the author described a boulder-bed, which he was inclined to identify with the rock described by Mr. Bain as "Claystone porphyry," and through this greenstone has forced its way. On and near the coast of the southern part of Natal, some sandy marls and sandstones belonging to the Cretaceous series were said to occur; the author gave lists of fossils obtained from these deposits, which he identified with the Trichinopoly series of India. Several of the fossils were described as new species. The author considered that the evidence adduced indicated that, after the development of the Table-mountain sandstone, Africa and India formed parts of one continuous continent, afterwards covered by the Cretacous sea. The area now covered by the Indian Ocean was the basin of a large series of lakes; and this condition persisted through a long period of tranquillity, lasting through the Triassic to the Upper Jurassic age. The greater part of this continent was then depressed and covered by the shallow Cretaceous sea. The economic mineral products of Natal were mentioned by the author, who referred to the occurrence of graphite, coal, gold, and copper. Prof. T. Rupert Jones commented on the importance of the paper as throwing so complete a light on the geology of Natal, and proving the geological sequence to be similar there to that in other parts of Southern Africa. He remarked that the author had done special service by the great increase of information furnished by him regarding the Cretaceous rocks of Natal, and their equivalence to those of India. He also pointed out that Mr. Griesbach had proved that the Karoo formation was continuous to the other side of the great dividing range, and formed the floor of the Orange and Waal Valleys, and that as Mr. Stow had indicated glacial action on the south side of the Orange Valley, it was quite possible that the gravels containing the diamonds were of local origin, as Dr. Grey had suggested. 4. "On the Diamond-Districts of the Cape of Good Hope." By Mr. G. Gilfillan. Mr. Gilfillan described his going through Colesberg to Hopetown, and thence across theOrange River to Backhouse; and then, after crossing the Vaal, up its right bank as far as Lekatlong. He noticed such diamonds as he saw or heard of, and described the locality as being thickly coated with sand, diamond-bearing gravel, and tufa, hard blue shales occurring here and there in protruding hills. Prof. Tennant stated that he had lately seen as many as 500 diamonds from the South African fields in the possession of one person, some weighing as much as 50 carats. He had seen another fragment of a stone which must have originally been at least as large as the Koh-i-noor.

Ethnological Society, December 13.—Professor Huxley, president, in the chair. Mr. E. Rowley Morris was announced as a new member. Mr. Grove, Q.C., exhibited a dozen skulls from a large collection in the crypt of Rothwell Church, in Northamptonshire; and Professor Busk, F.R.S., made some remarks upon their anatomical peculiarities. The skulls are, on an average, smaller than those of the existing race, and many exhibit an extreme lowness of forehead. Some of them are referable to Prof. Huxley's "river-bed" type. The discussion on these remarks was sustained by the President, Mr. Galton, and Mr. Evans.—Sir John Lubbock, Bart., read a paper "On Stone Implements from Africa," in which he described some implements of the spear-head type from the Cape of Good Hope, and some small polished celts brought by Mr. Reed from near Accra on the Gold Coast. He also exhibited a small, but exquisitely-worked flint implement found in Syria. Mr. A. W. Franks, Mr. W. Blackmore, Mr. E. B. Tylor, Mr. J. W. Flower, Mr. Hyde Clarke, and Mr. E. B. Pusey, took part in the discussion on Sir John Lubbock's paper.—A collection of stone implements was exhibited by Dr. Hooker, C.B.—Some notes from Mr. Edgar Layard were read relative to some stone spear-heads, hammers, flakes, cores, &c., from South Africa.—A second report "On the Present Condition of the Prehistoric Antiquities of Dartmoor," was presented to the Society by Mr. C. Spence Bate, F.R.S. The author described in detail several stone circles, bee-hive huts, and avenues on the south of Dartmoor, especially in the neighbourhood of the Avon and the Erme. On Trowlsworthy Tor is a curious circular enclosure, with two entrances so constructed as to admit only a single man at a time, which the author regards as a specimen of early military engineering.

Linnean Society, December 15.—Mr. Bentham, president, in the chair. Dr. J. Lindsay Stewart was elected a member of the council in the room of the late Dr. Anderson.—"On Sabadilla (*Asagræa officinalis* Lindl.) from Caracas," by A. Ernst. A large quantity of this drug is exported from Caracas and Venezuela, amounting to from 3,000 to 3,500 quintals annually, almost the whole being sent to Hamburg. The plant is a very common one by the roadsides in Caracas, but the greatest part of the drug (obtained from the seeds of the plant) comes from the hilly regions in the south, where it grows at an elevation of from 3,500 to 4,000 feet. It was originally discovered in the Mexican Andes, and is not known elsewhere. Although not mentioned by Humboldt, it is, however, apparently indigenous in Venezuela, growing in places where it is most unlikely to have been planted, and having been known long before the seeds were first exported by German druggists. The Caracasian plant differs slightly, but hardly specifically, from the typical form of Mexico. The bulbs contain numerous raphides of oxalate of lime.—"On the Pitcher-plant of California (*Darlingtonia*)," by W. Robinson, F.L.S. The Californian Pitcher-plants grow in the Sierra Nevada, at an altitude of 5,000 feet above the sea, in small sloping bogs along with *Sphagnum* and other true bog-plants. At a distance the pitchers have the appearance of jargonelle pears, holding their larger ends uppermost, at a distance of from 10 in. to 24 in. above the ground. This resulted from the pitchers being quite turned over at the top so as to form a full rounded dome, and the uppermost half of the pitcher being of a decided ripe pear-yellow. They are all twisted spirally, especially in their upper portion. Each pitcher had at the bottom a layer of from two to five inches of the remains of insects closely packed into it; from those of minute beetles to large feathery moths. What it is that attracts the insects is by no means clear. Pass a sharp knife through a lot of brown pitchers withering round an old plant, and the stumps resemble a number of tubes, densely packed with the remains of insects. Within the pitcher the surface is smooth for a little way down; then isolated hairs appear; and soon the chamber becomes densely lined with needle-like hairs, all pointing down, so decidedly indeed, that they almost lie against the surface from which they spring. These hairs are very slender, transparent, and about a quarter of an inch long, but have a needle-like rigidity, and are perfectly colourless. The poor flies, moths, ladybirds, &c., seem to travel down these conveniently arranged stubbles, but none seem to turn back. The pitcher, which may be a couple of inches wider at the top, narrows very gradually, and at its base is about a line in diameter. Here, and for some little distance above this point, the vegetable needles, of course, all converge, and the unhappy fly goes on till he finds his head against the thick firm bottom of the cell, and his rear against myriads of bayonets; and here he dies. Very small creatures fill up the narrow base, and above them larger ones densely pack themselves to death in the hope of fighting their way out. When held with the top upwards; sometimes a reddish juice, with an exceedingly offensive odour, drops from them. The plant is closely allied to the *Sarracenia*, and would no doubt be easily grown in this country.—"On Carnivorous and Insectivorus Plants," by Mrs. Barber (Cape Town).

NORWICH

Norfolk and Norwich Naturalists' Society, Nov. 29.—The Rev. J. Bates delivered a lecture on "Sun-spots," illustrated by numerous diagrams. After explaining the various and changing appearances presented by sun-spots and faculæ, and the electrical disturbances in the earth's atmosphere which accompanies them, Mr. Bates briefly reviewed the theories which have been advanced from time to time to account for these remarkable phenomena, and concluded by explaining the wonderful light spectrum analysis has thrown, not only upon the composition of the sun itself, but even upon the atmosphere by which it is surrounded, and the stupendous commotions by which it is constantly agitated.—Mr. Barrett read a paper "On certain coast insects found near Brandon." In June last Mr. Barrett captured at Brandon several species of moths, whose habitat was essentially coast sand-hills, and which he believes were not suspected to exist at any considerable distance from the sea. The nearest sea-coast to this locality would be upwards of twenty miles distant, and delicate insects such as the tiny *Gelechia desertella* and the weakly constructed *Auerastia lotella* would not voluntarily undertake so long a flight, and it is impossible, considering their frailness and the nature of the intervening country, to admit of their having been "blown across" to their present locality. Mr. Barrett therefore submits that as this tract of country was undoubtedly a range of coast sand late in the post-glacial period, when the great valley of the Fens was still submerged. These little insects are probably the descendants of an ancient race which has survived the physical changes of ages, and that possibly their very weakness has preserved them in a locality now far removed from what is considered their natural habitat. The specimens exhibited were identical in appearance with duplicates obtained from the coast, and the only difference observed in their habits was their earlier appearance, about a fortnight before the coast specimens, doubtless due to the warmer and more sheltered locality. Mr. Barrett's paper was followed by a discussion, in which some curious facts bearing upon his theory were elicited, amongst others the nesting of a coast species of bird (*Charadrius hiaticula*), in the same tract of country, these birds having, as it were, two distinct places of existence, one portion nesting on the sea beach far away, the other frequenting the ancient coast line which may have formed their breeding place countless ages ago. Seals found living in the Caspian Sea, in which the waters are only one-fifth the saltness of the open sea, are identical with those found in the North Sea and probably in the Mediterranean. Another species found in Lake Baikal, which is fresh water, is also found on the American coast. These, it was contended, were descendants of the oceanic seals, left by the subsidence of the water after the glacial period.—The President read some notes on the birds of New Zealand, from a letter recently received by him from his brother at New Plymouth, Taranaki. Speaking of the disappearance of small birds, which has been attributed to injuries inflected upon them by the bees on which they are supposed to have fed, and which have increased enormously, his correspondent altogether discountenanced the idea, attributing their disappearance to the disturbances of war, bush fires, and perhaps climatal changes. He adds: "I suspect that terrestrial commotions have altered our climate; since our last great earthquake, our winds have altered in their intensity, frequency, and direction. Report states that there has been a great disruption of Antarctic ice, which to me explains the frequency of penguins, mostly young, being among the rocks here, and the capture of two sorts of seals, the common seal and seal lion, both young, quite close to the town, though they have never been seen here since this was a settlement. The natives say they were common enough before the Europeans came, and they still call certain rocks on the beach by the names of the sort of seal that once frequented them. Some of the birds, however, appear to be returning to their former haunts.

GLASGOW

Geological Society, December 1.—Mr. John Young, vice-president, in the chair. *Bituminous Striped Sandstone.*—The chairman exhibited a block of carboniferous sandstone from Gilmore-hill quarry, about nine inches in thickness, showing in that space thirty-two well-defined alternate white and dark-brown stripes, which gave the specimen a beautifully stratified appearance. Mr. Young stated that the brown stripes were due to the particles of sand having become mixed with bituminous matter previous to their deposition. *Carboniferous Fossils.*—Mr. Thomas Naismyth exhibited several drawers of fish remains, principally from the coal-fields around Glasgow, upon which Mr. Young offered a few remarks illustrative of their generic characters and their range in the carboniferous strata. The collection contained a number of fine large teeth of *Rhizodus Hibberti*, from the iron-stone pits at Possil; jaws, scales, and teeth of *Megalichthys Hibberti* and *Megalichthys rugosus*, besides a number of fin-spines and other fragments of fishes, from the Airdrie coal-field. Among the specimens were also to be noticed a few fragments of reptilian remains, consisting of portions of crania, vertebræ, &c., which had been found near Airdrie, and at Quarter, near Hamilton. *Oil Shale.*—Mr. D. C. Glen, C.E., laid before the meeting several slabs of oil shale from near Collingwood, on Lake Huron, Canada; and also some samples of the petroleum distilled from it. The slabs were from the Silurian formation, which is of great extent in North America, and remarkable for the regular succession of its strata. When examined, these blocks of shale were found to be stratified horizontally with layers of Trilobites, Entomostraca, and other marine organisms. It was from the prodigious abundance of these crustaceans over this track of ancient sea-bottom that the shales now referred to had received their bituminous ingredients.

PERTH

Perthshire Society of Natural Science, December 2.—Dr. Buchanan White, president, in the chair. Mr. W. Herd exhibited two specimens (♂ and ♀) of *Dasypolia templi*, recently found by him near Perth. Intimation was given that the first number of the *Scottish Naturalist*, a quarterly magazine of natural history, published under the auspices of the Society, and supported by most of the leading Scottish naturalists, would appear early in January.—Mr. J. Sadler, F.R.P.S.E. (of Edinburgh), read a paper "On the Geographical Distribution of Plants in Perthshire." He traced the range of various characteristic plants from the sea-level up to the summit of Ben Lawers, the highest mountain in the county, and pointed out the distribution of the rarer species in other parts of Britain. In reference to *Saxifraga cernua*, which in Britain has only been found on the summit of Ben Lawers, Mr. Sadler said that in the opinion of some botanists the Ben Lawers plant was only an Alpine form of *Saxifraga granulata*, but in his opinion it was a good species. The paper was illustrated by an interesting series of diagrams, formed of dried specimens of the plants. One of these diagrams showed the altitude attained by the various plants found on Ben Lawers from its base to its summit.—The President read a paper upon "A Naturalist's Work in Winter." He divided his subject into two divisions, "Out-door Work" and "In-door Work," and pointed out what could be and should be done in the various branches of natural history during the winter months.

PHILADELPHIA

Natural Sciences Society, July 5.—The president, Dr. Ruschenberger, in the chair. Mr. Meehan exhibited some specimens of *Rumex obtusifolius*, a naturalised dock from Europe. He said that so far as he could ascertain from European specimens, and the descriptions of Babington, Bromfield, and other English botanists, the plant was there hermaphrodite; but here, as correctly stated by Dr. Asa Gray, it was monœciously polygamous. He thought the fact that plants hermaphrodite in one country becoming unisexual in another, was worthy of more attention by those engaged in the study of the laws of sex than had been given to it. This *Rumex* did not stand alone; *R. crispus* and *R. patienta* exhibited the same thing. *Fragaria* was another instance well known to horticulturists, although the fact scientifically had not received due weight. The average tendency of the strawberry in Europe was to hermaphrodism—here to produce pistillate forms. He also called attention to the fact that in these American specimens unisexuality was in proportion to axial vigour. This law he had already explained in times past to the Academy, and new instances were scarcely necessary. Here, however, the moderately weak plant had more hermaphrodite flowers than the strong one; and in both classes of specimens the number of male flowers gradually increased with the weakening of the axis, until the ends of the raceme were almost wholly of male flowers. The first flowers on the strong verticels were usually wholly pistillate. Prof. Leidy remarked that the interesting communication of Mr. Meehan had recalled to his mind a result of his experience, which he thought would accord with that of others, viz., that species viewed as common to both Europe and America frequently exhibit slight peculiarities, which are distinctive of those of the two countries. It is what might be inferred even if we admit the evolution of existing species from a common remote ancestry. A wide separation, with a considerable lapse of time and a modification of circumstances, are sufficient to account for the slight and acquired differences. Even where differences are not observed in form and structure, they may exist in the habit of the species. Thus the common wolf of Europe and America, viewed by many naturalists as of the same species, differs strikingly in character in the two countries. In the former it is a more fearless animal, not hesitating to attack man; in the latter, it is said never to attack man. At an early period observers saw, or thought they saw, many of the same species of plants and animals indigenous to America that occur in Europe, and hence the common names of European species were applied to those of America. Gradually the list of species common to the two countries was much reduced, and now is comparatively small.

August 2.—Mr. Vaux, Vice-president, in the chair. Mr. Thomas Meehan called attention to the arrangements of some plants for preventing fertilisation through any other than insect agency, as discovered by Darwin. The *Salvia* family of plants had the most elaborate arrangements for insect agency, but it had been objected to Darwin's theory that insects made no use of them. Bees bore holes through the tube from the outside for the honey, and do not enter by the mouth of the flower, as they ought. In the same way, in the *Petunia*, bees bore for honey from the outside. He had discovered that in these cases, where day insects failed to make use of these apparatuses, fertilisation was carried on by night moths, so that the objections to Darwinism were removed. He also referred to the common sweet chestnut, as bearing two classes of male flowers, only one of which probably aided in fertilisation. The first class appeared ten days before the other, and are those which give whiteness to the trees. They appear in the axils of the weak shoots. The female flowers appear on the apices of strong shoots, according to his theory of the laws of sex. The second class of male flowers appears at the ends of the vigorous shoots bearing the female flowers. Whatever affects the vigour of the tree interferes with the production of female but not of male flowers, and this was the reason why some seasons had short crops.

BOOKS RECEIVED

ENGLISH.—Text-books of Science; Inorganic Chemistry: W. A. Miller, M.D. (Longmans and Co.).—Method and Medicine, an Essay: B. W. Foster (Churchill).—Science, Creeds, and Scripture, and the Mystery of God: (Blackwood and Sons)—A Laboratory Text-book of Practical Chemistry: W. G. Valentin (Churchill).

FOREIGN.—(Through Williams and Norgate)—Theoretische Astronomie: Dr. W. Klinkerfues.—Handbuch der allgemeinen Himmelsbeschreibung: H. J. Klein.

PAMPHLETS RECEIVED

The Education and Status of Civil Engineers (published by the Institution).—Spectrum Analysis: a Lecture by W. Huggins—Spectrum Analysis: a Lecture by Prof. Roscoe.—Coral and Coral-reefs: a Lecture by Prof. Huxley.—Proceedings of the Annual Meeting of the Natural History Society of Montreal.—Proceedings of the Cleveland Institution of Engineers.—Science Education abroad: a Lecture by Principal Dawson.—Description of New Fossil Shells of the Upper Amazon: T. A. Conrad.—On the Heat developed in the combination of Acids and Bases: Dr. Thomas Andrews.—New Remedies: Dr. M'Elroy.—Provisional Catalogue of Transactions of Societies, Periodicals, and Memoirs in the Radcliffe Library.—Essay on the Comparative Efficiency of Spectroscopic Prisms of different Angles: E. C. Pickering.—Abstracts relating to the Preservation of Food: W. H. Archer.—Experiments on the Transpiration of Watery Fluid by Leaves: W. R. McNab, M.D.—Applicazione della teoria Darwiniana ai fiori ed agli insetti visitatori dei fiori: F. Delpino.

DIARY

THURSDAY, DECEMBER 22.

ROYAL, at 8.30.—Actinometrical Observations made at Dehra Doon and Mussoorie, in India: Lieut. Hennessey.—On the Constitution of the Solid Crust of the Earth: Archdeacon Pratt, F.R.S.—On the Extension of the Coalfields of England beneath the Newer Formations, and the Successive Physical Changes whereby they have been reduced to their present Dimensions: E. Hull, F.R.S.

FRIDAY, DECEMBER 23.

QUEKETT MICROSCOPICAL SOCIETY, at 8.

TUESDAY, DECEMBER 27.

ROYAL INSTITUTION, at 3.—Burning and Unburning: Prof. Odling (juvenile lectures).

THURSDAY, DECEMBER 29.

ROYAL INSTITUTION, at 3.—Burning and Unburning: Prof. Odling.

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ERRATUM.—Page 94, first column, line 2 from bottom, for "*aquetocus*" read "*aquaticus*."